

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Chris Comuntzis on 8/04/09.

The application has been amended as follows:

Replace claim 1 with the following:

1. A method of matched filtering in accordance with a reference signal sequence comprising a plurality of signal samples at regular sampling time intervals λ , said method comprising the use of apparatus to effect the following operations:

receiving an input time domain signal $r(t)$ to be filtered;

sampling the input time domain signal $r(t)$, at sampling time intervals τ that are not synchronized to the sampling intervals λ of the reference signal sequence, to produce an input signal sequence;

computing the Fourier transform of the input signal to be filtered evaluated at discrete frequencies f determined by the intervals τ at which the input signal is sampled;

computing the Fourier transform of the reference sequence, evaluated at the same discrete frequencies f_i ;

forming the product of the two Fourier transforms; and

computing the inverse Fourier transform of said product to produce an output time domain signal $y(t)$ representing, a filtered version of the input time domain signal;

wherein the reference sequence is defined as a function of time by a process of iteratively combining shifted versions of shorter sequences, and

wherein computing the Fourier transform of the reference sequence comprises an iterative process of combining the Fourier transforms of a shorter starting sequence using only the operations of inverting, addition, and multiplication, or equivalents thereof, performed by machine implemented digital signal processing.

Replace claim 11 with the following:

11. A matched signal filtering apparatus using a reference signal sequence comprising a plurality of signal samples at regular sampling time intervals λ , said apparatus comprising:

means for receiving an input time domain signal $r(t)$ to be filtered;

means for sampling the input time domain signal $r(t)$, at sampling time intervals τ that are not synchronized to the sampling intervals λ of the reference signal sequence, to produce an input signal sequence;

means for computing the Fourier transform of the input signal to be filtered evaluated at discrete frequencies f determined by the intervals τ at which the input signal is sampled;

means for computing the Fourier transform of the reference sequence, evaluated at the same discrete frequencies f ;

means for forming the product of the two Fourier transforms; and

means for computing the inverse Fourier transform of said product to produce an output time domain signal $y(t)$ representing a filtered version of the input time domain signal;

wherein the reference sequence is defined as a function of time by a process of iteratively combining shifted versions of shorter sequences, and

wherein computing the Fourier transform of the reference sequence comprises an iterative process of combining the Fourier transforms of a shorter starting sequence using only the operations of inverting, addition, and multiplication, or equivalents thereof, performed by machine implemented digital signal processing.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

The prior art of record does not teach or suggest computing the Fourier transform of the reference sequence comprises an iterative process of combining the Fourier transforms of a shorter starting sequence using only the operations of inverting, addition, and multiplication, or equivalents thereof, performed by machine implemented digital signal processing, as recited in independent claims 1 and 11.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL YAARY whose telephone number is (571)270-1249. The examiner can normally be reached on Mon-Fri 9 a.m.-5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis Bullock can be reached on 571-272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. Y./
Examiner, Art Unit 2193

/Lewis A. Bullock, Jr./
Supervisory Patent Examiner, Art Unit 2193